

Some Philippine Membracidae

W. D. FUNKHOUSER*

Through the courtesy of Prof. C. F. Baker I have received the following interesting series of Membracidae from the Philippine Islands. Eight genera including sixteen species are represented, of which one genus and six species are new. It is of interest to note that all of the forms belong to the Old World Centrotinae which seems to be the dominant subfamily of Membracidae in the Philippines as well as in eastern Asia.

I. *Pyrgonota bifoliata* Westw.

(Fig. 1)

- 1837 *Centrotus bifoliatus* Westw. Proc. Zool. Soc. 130.
1841 *Smilia bifoliata* Westw. Guer. Mag. Zool. Ser. 2. III.
Ins. Pl. 83.
1846 *Hypsauchenia westwoodi* Fairm. Rev. Memb. 521. 2.
Pl. 7. figs. 6, 7, 8,
1846 *Hypsauchenia bifoliata* Fairm. Rev. Memb. 521.
1851 *Hypsauchenia westwoodi* Walk. List Hom. B.M. 631. 2.
1851 *Hypsauchenia bifasciata* Walk. List Hom. B.M. 631. 3.
1870 *Pyrgonota bifoliata* Stal Hem. Phil. 731. 3.
1903 *Hypsauchenia westwoodi* Buckt. Mon. Memb. 211. Pl.
46. figs. 6, 6a.
1903 *Pyrgonota bifoliata* Buckt. Mon. Memb. 270.
1906 *Hypsauchenia bifoliata* Schmidt Stet. Ent. Zeit. 370.

Two specimens of this remarkable insect which is one of the most bizarre of the Membracidae. There seems little doubt as to the identity of the *bifoliata* and *westwoodi* as recognized by Stal and the distinctive character of the pronotal horn would seem to warrant the retaining of the genus *Pyrgonota* as established by that author.

II. *Tricentrus fairmairei* Stal.

- 1859 *Centrotus fairmairei* Stal Freg. Eug. resa Ins. 284. 192.
1866 *Tricentrus fairmairei* Stal Analect. Hem. 387.
1870 *Tricentrus fairmairei* Stal Hem. Phil. 728. 3.

* Contribution from the Entomological Laboratory of Cornell University.

1903 *Terentius fairmairei* Buckt. Mon. Memb. 271.

1905 *Taloipa tinctoria* Buckt. Trans. Linn. Soc. IX. 334. Pl. 22. fig. 4.

1907 *Tricentrus fairmairei* Dist. Fauna Brit. India 58. 2188.

A series of eight of this species without variation in coloration or venation. The two males are somewhat smaller than the females.

III. *Tricentrus convergens* Walk.

1851 *Centrotus convergens* Walk. List Hom. B. M. 623. 59.

1870 *Tricentrus convergens* Stal. Hem. Phil. 728. 1.

1907 *Tricentrus convergens* Dist. Fauna Brit. India 53.

Four specimens, two males and two females, which I determine as *convergens*. The males are very much smaller than the females and agree well with Walker's description which was founded on the male. The females, however, besides being much larger, are lighter in color and the horns are much more developed and wider apart at their extremities.

IV. *Tricentrus pilinervosus* sp. nov.

(Figs. 2 and 2a)

Near *Tricentrus decoratus* Dist. but differs in having the horns more elevated and the posterior process longer, much more acute and extending beyond the posterior angle of the inner margin of the tegmina.

Entirely black; densely, rather coarsely punctate; covered with long, silky, scattered grayish hairs. Hairs thicker and matted just below the horns. Horns extending upward, outward and slightly backward; as seen from above rounded before and almost straight behind. Posterior process very narrow and acute, reaching beyond the angle of the tegmina and bearing a strong median carina which extends anteriorly as far as the horns. Head black, densely punctate and pubescent. Ocelli slightly farther from each other than from the eyes. Eyes yellow. Tegmina fuscous-hyaline, black and punctate at base; costal and apical margin clouded; veins ferruginous and each bearing two rows of short bristly hairs; two discoidal cells. Legs blackish-ferruginous, tibiae pubescent, tarsi lighter. Posterior trochanters strongly spined.

Type—Male.

Length, including tegmina, 6.5 mm.

Width between extremities of horns, 3.75 mm.

Habitat—Los Banos. Collected by C. F. Baker.

V. *Leptocentrus reponens* Walker.

1851 *Centrotus reponens* Walk. List Hom. B. M. 604. 14.

1859 *Centrotus antilope* Stal. Freg. Eug. resa Ins. 284. 191.

1870 *Leptocentrus antilope* Stal. Hem. Phil. 727. 1.

1885 *Leptocentrus reponens* Atkins. J. A. S. B. 54. 86.

1903 *Centrotus reponens* Melich. Hom. Ceylon. 110. 2.

1907 *Leptocentrus reponens* Dist. Fauna Brit. Ind. 30. 2138.

Three specimens, all female. No variation.

VI. *Centrochares horrificus* Westw.

1837 *Centrotus horrificus* Westw. Proc. Zool. Soc. 130.

1841 *Centrotus horrificus* Guer. Mag. Zool. Ser. 2. III.
Ins. Pl. 82.

1851 *Pterygia horrificus* Walk. List Hom. B. M. 500. 9.

1852 *Pterygia horrificus* Walk. List Hom. IV. tab. 4. figs 4
and 5.

1866 *Centrochares horrificus* Stal. Analect. Hem. 386.

1870 *Centrochares horrificus* Stal. Hem. Phil. 731. 1.

1903 *Pterygia horrificica* Buckt. Mon. Memb. 73. Pl. 12. fig. 5.

1903 *Centrochares horrificus* Buckt. Mon. Memb. 266.

Three specimens. One male, two females. The male smaller and darker and with suprahumeral horns less expanded at tips.

VII. *Cryptaspidia pubera* Stal.

1870 *Cryptaspidia pubera* Stal. Hem. Phil. 729. 1.

1903 *Cryptaspidia pubera* Buckt. Mon. Memb. 267.

One specimen (female).

VIII. *Cryptaspidia tagalica* Stal.

1870 *Cryptaspidia tagalica* Stal. Hem. Phil. 729. 2.

One specimen (female).

IX. *Gargara varicolor* Stal.

1870 *Gargara varicolor* Stal. Hem. Phil. 728. 3.

A series of five specimens, one male and four females. The male is somewhat smaller and darker than the females and the latter show some slight variations in color, but Stal credits the species with several varieties and it seems evident that these gradate.

X. *Gargara nigro-fasciata* Stal.

1870 *Gargara nigro-fasciata* Stal. Hem. Phil. 729. 5.

One female which answers exactly to Stal's description of this species. The high carinated posterior process and the distinctively marked tegmina seem to sufficiently characterize the species.

XI. *Gargara pulchripennis* Stal.

1870 *Gargara pulchripennis* Stal. Hem. Phil. 729. 4.

One male and two females. The species is easily recognized by the dark tegmina decorated with stripes and numerous confluent white spots.

XII. *Gargara tuberculata* sp. nov.

(Fig. 6)

Entirely lemon yellow with very small scattered tubercles on pronotum. White line on each side of pronotum starting at median cephalic margin and extending backward over the shoulders in three branches, one of which passes under the humeral angle, one just above the angle and the third continuing over the angle to the notch at base of posterior process. A dark foveate spot on pronotum just above and slightly mesad of each eye. Head yellow, white tomentose below; ocelli farther from each other than from the eyes. Eyes brown with yellow margins. Posterior process set off from thorax by deep notch on each side at base; high median carina extends more obsoletely into thorax; extremity suddenly acuminate and brown at tip, just attaining angles of tegmina. Tegmina yellow opaque, base punctate and finely pilose; veins, except at base, thickly decorated with brown nodules. Entire undersurface of body white tomentose; sheath of ovipositor ferruginous. Legs yellow except bases of femora which are ferruginous.

Male smaller and slightly less tomentose below. Pronotal markings bluish.

Type—Female.

Length, including tegmina, female, 4.5 mm.; male, 4 mm.

Width at humeral angles, female, 2.5 mm.; male, 2 mm.

Habitat—Los Banos. Collected by C. F. Baker.

XIII. *Gargara luteipennis* sp. nov.

(Fig. 7)

Pronotum, wings and legs flat yellow. Head, front of pronotum and underparts of body ferruginous yellow. Pronotum finely punctate, not pilose. Very small dark foveate spot above each eye. Head very short, somewhat pubescent with yellow hairs; ocelli farther from each other than from the eyes. Eyes brown. Posterior process very slender and acuminate, slightly arched and just reaching internal angles of tegmina; obtuse median carina extending obsoletely through thorax. Tegmina yellow opaque, base punctate, veins yellow and each vein margined by narrow brown band finely punctate. Legs entirely yellow.

Length, including tegmina, 4 mm. Width between humeral angles, 2.5 mm.

Habitat—Los Banos. Collected by C. F. Baker.

Described from one female specimen.

XIV. *Gargara nitidipennis* sp. nov.

Pronotum ferruginous-brown before humeral angles, yellow behind; thickly and coarsely punctate, not pilose; broad dark foveate spot above each eye; broad light stripe over each humeral angle. Posterior process straight, closely impinging on tegmina and scutellum, extremity depressed and brown at tip, just reaching to internal angles of tegmina. Head black with yellowish pubescence; ocelli farther from each other than from the eyes. Eyes brown. Legs and underparts of body uniform ferruginous brown. Broad white tomentose patch extending across meso and metathorax from eye to beneath tegmina. Tegmina iridescent hyaline, base punctate.

Male somewhat smaller and darker and showing a clouded brown patch behind middle of tegmina.

Type—Female.

Length, including tegmina, female, 3.5 mm.; male, 3.33 mm.

Width at humeral angles, female, 1.5 mm.; male, 1.33 mm.

Habitat—Los Banos. Collected by C. F. Baker.

XV. *Sipylus nodipennis* sp. nov.

(Fig. 5)

Body subtriangular. Pronotum slightly wider between the humeral angles than the distance from the anterior convexity to the extremity of the posterior process. Body, legs and head uniform ferruginous brown covered with thick yellow pubescence. Head very short and broad; ocelli farther from each other than from the eyes. Eyes yellow. Pronotum convex, humeral angles strongly auriculate and wide at extremities; two large tubercles between humeral ears and extremity of posterior process, the first larger, the second darker in color; posterior process triangular, as broad as long, very obtusely ridged in the middle, not quite attaining the internal angle of the tegmina. Tegmina broad, rounded at apex, subhyaline, punctate at base, veins with very prominent brown nodules. Posterior trochanters armed with strong teeth.

Males smaller and darker in color.

Type—Female.

Length, including tegmina, female, 3.75 mm.; male 3 mm.

Width at humeral angles, female, 3.5 mm.; male, 2.75 mm.

Habitat—Los Banos. Collected by C. F. Baker.

Centrotoscelus gen. nov.

Scutellum distinct. Pronotum unarmed above lateral angles. Posterior process extending beyond the scutellum, impinging on scutellum and tegmina, slightly concave before extremity and reaching just beyond the internal angles of the tegmina. Hind wings with three apical areas. Posterior trochanters armed with teeth on the internal margin. Body much longer than wide.

This genus seems to stand between *Tricentrus* Stal and *Gargara* Am. and Serv. It is to be distinguished from the former genus by the absence of horns above the humeral angles, and from the latter by the presence of armed trochanters. In shape of body and general facies it most resembles the larger forms of *Gargara* but this latter genus has been distinctly limited to those forms which have the posterior trochanters unarmed.

The genus is established to admit the following species of which I have both male and female specimens.

XVI. *Centrotoscelus typus* gen. nov., sp. nov.
(Figs. 3 and 4)

Ferruginous-brown; pronotum finely and densely punctate and sparsely covered with grayish hairs. Pronotum convex, highest above lateral angles; lateral angles obtuse. Posterior process long, narrow, gradually acuminate, somewhat concave before extremity, slightly depressed at tip, extending somewhat beyond internal angles of tegmina; median ridge distinct at apex and becoming obsolete in thorax. Head short, broad, densely pilose with long grayish hairs. Antennæ prominent. Ocelli farther from each other than from the eyes. Eyes brown with darker fascia. Tegmina subhyaline, brown and punctate at base, very narrow brown transverse stripe behind middle and faint brown cloud at apex. Legs ferruginous, tarsi yellowish, claws black. Segments of abdomen margined with white above.

Male smaller, darker, markings of tegmina more prominent especially the brown cloud at apex.

Type—Female.

Length, including tegmina, female, 5 mm.; male 4.33 mm.

Width at humeral angles, female, 2.5 mm.; male 2.2.

Habitat—Los Banos. Collected by C. F. Baker.

EXPLANATION OF PLATES

- Figure 1. *Pyrgonata bifoliata* Westw.
Figure 2. *Tricentrus pilinervosus* sp. nov.
Figure 2a. *Tricentrus pilinervosus* sp. nov. Cephalic view.
Figure 3. *Centrotoscelus typus* sp. nov.
Figure 4. Hind trochanters *Centrotoscelus typus*.
Figure 5. *Sipylus nodipennis* sp. nov. Dorsal view.
Figure 6. Fore-wing *Gargara tuberculata* sp. nov.
Figure 7. *Gargara luteipennis* sp. nov. Cephalic outline.